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The Making of an Ames Forester

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Foremost among the movements for a better forestry course at Ames, is that for the establishment of a summer camp at the close of the Freshman year. This plan is in perfect keeping with the Ames motto of "Science with Practice" in that half a year's work has been transferred to the woods, where actual forest conditions exist.

Courses in forestry have been given yearly at Iowa State College since 1878. In these earlier years forestry was given in connection with horticulture and agriculture and consisted mostly of practical instruction of value to the farmers of the state. The course in forestry now required of all freshmen agricultural students is the outgrowth of these earlier courses in forestry.

The great demand for technically trained men in national, state and private forestry work made possible the establishment of a regular course in forestry at Ames about ten years ago. The first class in the new course was graduated in 1908. Since that time the forestry curriculum has increased in scope, until it compares very favorably with courses given at other institutions of a similar nature. The attendance has likewise increased and the present enrollment of forestry students compares very favorably with the older coordinate courses given at the College.

The course in forestry covers a period of four years and leads to the degree of Bachelor of Science in Forestry. Beginning with the Fall semester, 1913, however, the course has been changed by transferring one semester's work to a summer camp to be established in the forested region of Wisconsin or Minnesota. This arrangement allows the student to complete the course in three and one-half years, finishing at the end of the Fall semester of his senior year.

The campus at Ames comprises 125 acres, upon which has been planted over 150 species of native and exotic trees. This condition affords the student in forestry an excellent opportunity to study at close range the more important economic trees growing in the temperate regions of America and Europe. In addition a good chance is offered for the study of various kinds of

timber these species produce, besides many others not grown at Ames. In the forestry museum are more than 1,500 specimens of native and foreign woods, which have formed portions of the Iowa and other exhibits at national expositions. The display includes practically every important North and South American tree species, some from Europe, the Philippines, Japan and other countries. Many of these specimens are of large size and are very valuable.

About 100 species of North American woods have been made up into herbarium cases, each case being made of a single species, and each prepared especially to show the technical qualities of the timber. The woods include all the more commonly used species, besides hackberry, catalpa, pecan, persimmon, and other less common ones.

The forestry library at the College is one of the most complete of its kind in the country. Practically all of the standard works of American and European authors are to be found there. A very complete collection of government and state bulletins relating to forestry are on file in the department, and also files of lumber journals, forestry magazines and other periodicals of allied nature. All books, bulletins, and other forestry publications are indexed, and the library is thus made of great value for reference work.

The forestry course at Iowa State College has been arranged with especial care and in such manner that the students in forestry get a thorough grounding in closely related subjects.

The first year in forestry is the same as for the general agricultural students. Much of the forestry as practiced in the Government Service consists in land classification, grazing and related work, and it is readily seen that a good idea of the more common farm crops and also of animal husbandry is necessary.

During the first semester the students are given a thorough course in general chemistry. One afternoon each week is spent in the forge shop, making welds, tools, and doing other simple forge work.

In animal husbandry, market types of stock are studied and beef cattle are judged. The farm crops work consists mostly of an intensive study of corn, its soil and climate requirements, and its planting and subsequent care. An excellent course in orchard practice, a series of lectures on veterinary anatomy, and a strong

course in algebra and trigonometry are also included in the first half year's work.

The second semester's work consists of courses in woodshop, small grains, physics, and a good course in farm forestry. This latter course deals primarily with forestry as it affects the Iowa farmer. The factors affecting tree growth; the structure and qualities of wood; the identification of trees, and the uses of the different species; the planting and care of woodlots and windbreaks; the treating of posts and farm timbers are especially dwelt upon.

The third semester includes the summer period at the end of the freshman year and is given at the summer camp. The forestry student has been well grounded in mathematics and other fundamental subjects, and is entirely fitted to pursue the studies offered during the summer term. The camp will be located in the northern forest region where active logging and milling operations are being caried on, and the site will be changed from year to year. At this camp such subjects as can only be taught well in the forest will be given—silviculture, forest mensuration, lumbering and utilization. In silviculture opportunities will be afforded to study actual forest conditions, and practice methods of forest treatment best suited to the conditions found. The work in forest mensuration will be made very practical, and excellent chances will be at hand to work out the various problems in connection with the study. Lumbering and utilization will be studied intensively on the ground at logging and milling operations located in the vicinity of the camp. Side trips to other operations will be made during the course as opportunity affords.

Besides the regular instruction given during the term, the students will become familiar with out door living, and learn how to enjoy it. The camp will consist of a number of tents for living and instructional work, located near a lake or stream, and excellent opportunities for real enjoyment and recreation will be had, after the hard days work is done. The reason for giving this summer work so early in the course is for the purpose of acquainting the student with camp and woods ways, and fitting him for active and enjoyable work in forestry upon the completion of his college life.

The work given at the summer camp will be strenuous, as a whole semester's instruction is crowded into three months' time;

but the enjoyment of the camp fires and camp fire stories, and the pleasant associations with fellow students will make for a profitable and altogether enjoyable summer.

Upon the return of the students to the College in the Fall the second semester of the Sophomore year is begun. Botany is a leading subject during this term. Foresters are required to take seven courses in this subject during their four years work at this institution. Vegetable physiology with especial reference to trees is completed this semester and dendrology is begun. The study of angiosperms is first taken up and each student is required to make a herbarium and identify the specimens by leaf, bud and twig characters. Excursions are made to Steamboat Rock, the southwestern limit of white pine, "The Ledges" near Boone, and Skunk River to familiarize the students with the common species of Iowa trees in their native haunts.

The course in topographic drawing given during the semester is extremely valuable to foresters. In all of the more intense forest surveys and cruising topographic maps are made. A knowledge of topographic methods enables one to sketch in accurately contours and cultures by eye, and make workable maps for use in lumbering and other forestry operations. Organic chemistry, English, and economics are also given during the term.

The fifth semester is devoted largely to tree propogation and the care of trees. A thorough course in forest planting is given in which the student is required to prepare and care for beds of coniferous and broadleaf seedlings during the spring season and also to do transplanting work in nursery beds and in the open woods.

The Forest Service is increasing its work along lines of forest planting each year. Railroads are planting extensively species suitable for cross ties. Farmers are setting out woodlots, and cities and towns are beginning to establish municipal forests to protect the sources of their water supply and for other municipal uses. It is essential that foresters have a thorough knowledge of planting work and how to handle the stock used, especially of coniferous species.

Park and street trees, desirable species, their propogation and care is given during the semester. This is not a course in "tree doctoring," but rather affords the student a thoroughly practical

training in the selection and subsequent treatment of arborescent species for park and street planting. This course is particularly desirable for those contemplating city forestry or landscape work.

Forestry seminar begins with the first semester of the Junior year, and continues until the course is completed. Seminar consists in the relating of forestry activities, of which the student is familiar through study or practice, before the class every two weeks. After each talk an informal discussion is entered into by those present. The course enables students to talk fluently and intelligently on forestry subjects, and handle himself with ease and grace.

Soils is taken up very intensively during the Junior year. Soil physics in which the origin, classification, texture, specific gravity, evaporation, erosion and other physical features of soils are included, is studied thoroughly. Soil fertility is studied as a separate course, in which the chemical elements of the earth and their effects on plant growth are determined. Soil surveying completes the course in soils. This includes the preparation of a soil map of the forested regions of the country. It is indeed interesting to note the effect of soil on the distribution of tree species.

Plant breeding, in which the practical application of the principles of the subject is dwelt on at length, and general zoology are given also during the semester.

A thorough course in surveying is given forestry students which covers an entire year. Six hours of field work and two hours of lectures are given each week. It usually takes embryo surveyors two or three weeks to acquire the correct "air" of a transit or level man, after which period one can only with great difficulty distinguish them from experienced practitioners. By "air" is meant that something in a surveyor's attitude and demeanor which exhibits fully the great importance that surveyors as a rule attach to themselves. Before this change occurs it is extremely interesting to watch the boys carrying valuable instruments about on the campus—a very valuable psychological study indeed.

The last year of the forestry course is concerned with the more technical subjects, as timber testing, wood technology, forest valuation, working plans, forest protection, besides other subjects less technical in character.

Timber testing, or "timber busting", as it is commonly known among the students, is a very interesting course. Each student determines for himself the strength of various species of timber in the different tests, and incidentally learns why the village school master preferred hickory to other woods in the admonition of wayward pupils. The crushing, bending, torsion, tension, and compression strength of several species of woods are determined.

In the course in wood technology the identification of the various kinds of woods upon the market by the use of the hand lens and other means is the chief object. The physical and technical qualities of wood are studied as warping, shrinkage, checking, etc., and a study of wood preservation is made.

The subjects of forest valuation and regulations and working plans are the highly technical courses in forestry. They are carried through the entire senior year. The aim of the courses is to enable the student to understand and be able to apply the principles of the different methods and theories used in the determination of present and future forest values, and the present and future values of land for forestry purposes.

Work in systematic botany and in plant pathology is given in this year of the forestry course. The former is a very comprehensive study, while the latter is limited to a consideration of the pathology of forest trees. A detailed study is made of certain tree diseases, their damages, method of control and extermination. Each student is required to make a collection of fungi in connection with this work.

The protection of forests, of plantation and nurseries is considered in a brief course in forest protection, and a study of the more common forest insects and their control is made in forest entomology.

Forestry in the United States, and all foreign countries where it is practiced is studied intensively in a course in forest history and policy. In forest administration are taken up the various phases of the adminstration of forests, with especial reference to the National and State Forests in this country. Timber sale work and grazing are particularly emphasized in the course.

Camp technique is intended to put the finishing touch to the practical side of forestry. The methods of packing, throwing hitches, tying knots, pitching tents and establishing camp are demonstrated, and lectures on personal and camp equipment are

given during the course. Lectures and demonstrations by the college physician are given on the care of the sick and injured in camp, and on camp hygiene.

The Forestry Club at Ames is composed of all the members of the forest school. Meetings of the club are held every two weeks, before which lectures are delivered by members of the faculty and others on topics closely allied to forestry and of especial interest to forestry students.

Camp fires and smokers are occasionally indulged in and a spirit of comradeship among the students is prevalent. At camp fires are told and retold the experiences of the older men in forestry, and tales of the country in which they have worked. Fish stories, yarns, songs and jokes, hold entire sway, and everyone has an enjoyable time. These and other features, together with the hard work and free life of the forester, are what makes the profession appeal so strongly to men who enjoy nature, and at the same time are not adverse to good hard manual labor. Forestry is not a lazy man's work. Beginning at an elevation of 7,300 feet at a creek, after walking three miles over rough country from camp, and running a line up the slope of a mountain, over cliffs, rockslides, through aspen thickets, oak brush and Mexican locusts to an elevation of 10,500 only to return through a similar country to the base line from which you started, and then drag yourself into camp at night is not an easy task, and those who are inclined to be lazy do not last long on the job.

Upon graduation the Ames forester enters upon a pleasant life, frought very often with hardships, and dangers. His is a life of health and good cheer, broken by many amusing incidents and with now and then a shadow to make the pleasures seem all the more bright. Taken all in all foresters like their chosen profession not particularly for what it is to them. but for what it is to others and to their posterity.